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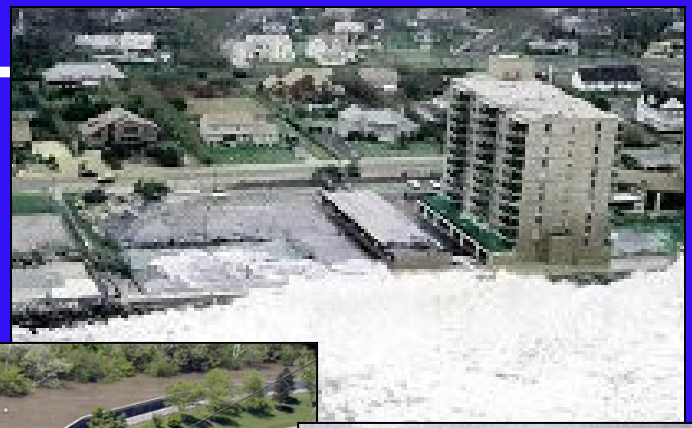
R&D Program: TOWNS

Work Unit: Flood Prediction System for Coastal Cities



Needs & Problems Addressed:

- Prediction of combined coastal and riverine flooding in urban environment is difficult due to complex processes
- Currently there is no software application that adequately addresses multidimensional environmental, hydrologic/hydraulic, geotechnical, and logistical requirements in consolidated manner

Objectives:

- Develop a hydroinformatic environment for urban settings based on multidimensional tools

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Work Unit Funding Profile:

FY03	FY04	FY05	Total
$250k	$250k	$250k	$750k

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Business Program/Missions Areas Supported:

- Inland Navigation __ %
- Coastal Navigation __ %
- Coastal Storm Damage Reduction 50 %
- Inland Flood Control/Damage Reduction 30 %
- Environmental Protection & Quality __ %
- Multi-Purpose (Hydropower, Rec & Water Supply) __ %
- Emergency Management 20 %
- Regulatory __ %
- Support for Others __ %

(Must to add to 100%) Total: 100 %

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CW Strategic Goals Check List: (check if applies)

- Provide sustainable water resources development & mgmt _X_
- Restore past environment degradation ___
- Provide project services of high quality _X_
- Reduce losses from natural & manmade hazards _X_
- Supports being a world class technical leader _X_
- Addresses strategic or system needs in a framework or integrated approach by developing:
  - Methods or decision support tools _X_
  - Technology to improve life cycle productivity ___
  - Technology to monitor systems, provide feedback and develop operating guidance ___

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Which “short term” field needs does this support:

- Improves efficiencies in operation of Corps water control projects and emergency operations
- Improves functional performance of urban flood prediction
- Expedites decision-making
- Increases public safety through m accurate forecasts

Field Review Group Relative Ranking

- FRG planned for 21-22 AUG 02

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Listening Sessions Check List: (check if applies)

- Improves data sharing/exchange with the public in these areas:
  - Provides one stop shop for maps & data for basin wide planning _X_
  - Provides data to make informed decisions _X_
  - Provides a system for basin wide planning _X_
  - Provides information about what is happening at Corps facilities ___ (up to date web sites)
- Tech Transfer plan to include educating the public _X_
- Coordinate research, models, analysis with regulatory agencies to insure results will be accepted _X_
- Develop R&D products:
  - For watershed management plans, not just at the project level _X_
  - To include aesthetics as components of all projects ___
- Create better models for ground & surface water _X_

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Products:

- Flood Prediction System for Urban Settings
- TN: Data requirements for coastal flood protection systems
- TN: GSSHA/FEMWATER/WASH123D capability
- TN: ADCIRC/WAM capability
- PROSPECT training
- TN: Urban Snow Model
- Users manual and tutorials
- Engineer manual/ETL

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Benefits

- Direct:
  - Provides multi-dimensional modeling capability that currently does not exist in CWMS
- Indirect:
  - Provides fundamental knowledge for operating Corps water control projects
  - Increases system productivity of CWMS
  - Enhances 1-D modeling capabilities and addresses coastal issues
  - Reduces property and life loss

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Technology Transfer Plan:

- Workshop
- Technical Notes
- Demonstrations
- Software distribution and system documentation (including users manual and tutorial) available on TOWNS website
- PROSPECT training

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Why should the Corps fund this R&D, instead of private industry and/or others:

- Addresses particular Corps problems using Corps-developed models

What is Impact if not started:

- If not continued, system-wide analyses based on integration of GIS/H&H/inspection data will not be possible
- Inundation mapping due to FDR structure failure will be more time consuming and less accurate